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Officially inaugurated by
YBhg Dato’ Seri Utama S. Samy Vellu
Chancellor & Chairman of AIMST University
in the presence of
Snr. Prof. Dr. Manickam Ravichandran
CEO and VC, AIMST University
on 10th October, 2015

Inaugural Issue
Greetings.

AIMST E-BULLETIN has been started with the intention of disseminating information about the academic, research and other exciting activities of AIMST University. It will also be a platform to share relevant useful information among the staff and students. At the outset, I would like to update that AIMST University is progressing well as a premier private University in this region that offers quality education. The quality is indicated by our staff and students achievements. We have been creating exciting milestones for 2015 such as, the first Bachelor in Dental Technology course in Malaysia and new frontiers in International cooperation such as collaboration with French universities and with University of Ottago, New Zealand.

Our talented academic staffs have created successful MOOC courses to share their knowledge. For the first time in the history of AIMST University, researchers have filed two patents, one on inflatable bed pan and the other on intelligent monitoring device for Dengue mosquitoes. Since last year, there has been a rise in research publications and research grants from AIMST University. One of the testimonies of research excellence is that Ministry of Science and Technology and Innovations (MOSTI) has approved AIMST as one of the recipient of ScienceFund, InnoFund and Technofund. With all the achievements, AIMST is now moving forward with greater corporate social responsibilities.

We have been offering free dental treatment to the needy patients through our dental institute, adopted 14 schools and in future, we will be offering full scholarship to the needy students. All the achievements are made possible with great support from our beloved Chairman Dato Seri Utama Samy Vellu, AIMST Board of Governors, Maju Institute of Educational Development (MIED), AIMST Maintenance department and the stakeholders. We do have certain challenges in staff recruitment and certain other areas. I am confident that we will bring this beautiful university to greater heights with the support from all. I hope this AIMST E-BULLETIN will be a source of information sharing and inspiration for all staff, students and alumni of AIMST University. My heart felt congratulations and best wishes for this inaugural AIMST E-BULLETIN issue and the issues to follow.

Senior Professor Dr. Manickam Ravichandran, Chief Executive & Vice Chancellor.

Deputy Vice Chancellor’s Desk

Most universities have their tool for internal communication between the members of its institutions and now, AIMST University introduces AIMST E-BULLETIN, among other communication resources which has the objective to serve as a primary tool for internal communications among the staff, students and alumni of AIMST University.

As the university continues to grow, the number of staff, students and programmes increase, and an official tool for communication is becoming more apparent. The AIMST E-BULLETIN will serve as the official venue for the staff, students, faculties, programmes and other family members of AIMST University to share their achievements, progress, events, goals etc. with other AIMST members.

It also serves as the main reference for accurate information about AIMST University. All the faculties, departments, programmes and individuals should take the opportunity to share their achievements through the AIMST E-BULLETIN.

I would like to take this opportunity to congratulate the Editorial Board of the AIMST E-BULLETIN especially to the Editor-in-Chief for your success to produce the first issue this October 2015. The challenge is for the Editorial Board to maintain the publication of the AIMST E-BULLETIN on the scheduled time with utmost quality and relevant updated information.

Professor Dr. Mohd Baidi Bahari, DVC (Student Affairs) & Dean, FOP.
Registrar's Desk

I am delighted to extend my greetings to Staff and the Students of AIMST University. The University's motto “Educating Tomorrow’s Leaders” is a visionary statement which serves as a guiding principle for the students, as they enter the university system for their higher education. It is true that fruits of Higher Education are sweeter and valuable when it promotes the blossoming of natural talent that enriches students to be value enhanced individuals.

The global scenarios of higher education as well as in Malaysia are now in a transformation phase as compared to earlier times. We are in a compelling era where the world demands a change in conventional practices and transformation to adapt the current needs to address futuristic requirements of education. AIMST is now facing challenges in focusing their priorities in increasing the quantity of service, providing practical and industrial-oriented syllabus, promoting educational programs in total quality management, ensuring an environment with valuable green campus for staff and students, increasing value added programs, convergence of technologies, taking the benefits of research and development to the society, community the nation at large.

At this juncture, I would like to inform that the Honourable Vice Chancellor and the Senior Management are dedicated to provide an easy and accessible leadership to put the management systems in place. This will in return, will enhance the infrastructure and facilities for the University; thereby acting as a catalyst to increase the efficiency of AIMST.

Lastly, I salute and extend my appreciation to all the staff and faculty for their continuous dedication to this University. – Dr. Kathiresan V. Sathasivam, Registrar.

Editorial Desk

Effects of Negative Thoughts...

The moment Negative Thought enters in your Mind:
1. Your Body releases Acid.
2. Your Aura Decreases.
4. Your system’s functions are affected.
5. Your Heart beat Increases.
6. Your Blood Pressure Increases.
7. Unwanted Hormones are Released.

With that Negative Thought you may or may not Harm others...
but you Definitely Harm Yourself...!

Think Positive and Be Healthy...

It gives me immense pleasure in penning down the editorial section in the inaugural issue of AIMST E-BULLETIN, as Editor-in-Chief. I would like to share the following short story which left an indelible mark on me. …

Once upon a time, there was a shepherd who had a herd of goats and a horse in his farm. One day, the horse became ill and the shepherd called veterinarian, who after examining the horse, said, “Well, your horse has a virus. He must be given this medicine for three days. I’ll come back on 3rd day and if he's not better, we’ll have to put him down.” One of the goats listened closely to their conversation and was very disturbed. The next day, first shot of medicine was given to the horse but, it could not muster any strength to rise up. The goat approached the horse and said, “Be strong, my friend. Get up or else they’re going to put you to sleep forever!” On second day, next shot was given to the horse but, it still wouldn’t budge. The goat came back again and said, “Come on buddy, get up or else you're going to die! Come on, I'll help you get up. Let's go! One, two, three...” On third day, horse was administered third shot of medicine but, the horse still wouldn’t budge. The vet later said, “Unfortunately, we’re going to have to put him down tomorrow. Otherwise, the virus might spread and infect other animals.” After they left, goat approached the horse, and with compassion said, “Listen pal, it's now or never! Get up, come on! You can make it! Be bold! Have courage! Come on! Get up! Get up! That's it, slowly! Great! Come on, one, two, three... Good, good. Now faster, come on... Fantastic! Run, run more! Yes! Yes! You did it, you're the champion!!!” The horse, on hearing the goat’s constant encouragement for three days had actually risen up, took a few nimble steps and then started running. All of a sudden, the boss saw horse running in the field and began shouting excitedly, “It's a miracle! My horse is cured. We must have grand party. Let's cook goat for dinner tonight!!!”

On knowing about the dinner party, the horse went to the goat and asked, “What is this?” The goat cheerfully replied, “Our destiny lies among our free choices, disguised as the free-est of all.” (Robert Brault)

Morale: The boss seldom knows, who actually deserves the credit. But remember...

“Think truly, & thy thought shall be the world's famine feed;
Speak truly, & each word of thine shall be a fruitful seed;
Live truly, & thy life shall be a great & noble creed’.

- "Be True," from Hymns of Faith and Hope (1867).

Mr. Abdul Nazer Ali, Editor-in-Chief, AIMST E-Bulletin.
History of AIMST University

In 1984, to contribute in providing education to the deserving and needy students, the then President of the Malaysian Indian Congress (MIC), Dato’ Seri Utama Dr. S Samy Vellu established the Maju Institute of Educational Development (MIED) as an educational arm of MIC. In accordance with the Malaysia’s national education policy and echoing the call to transform Malaysia into the education hub, MIED embarked on a mission to establish a state-of-the-art private University in the country.

In year 2000, MIED’s application for establishment of the university was approved by the Malaysian Government and the Kedah State Government has kindly alienated a piece of land on which, MIED built the university campus. The ground breaking ceremony for the University’s campus in Semeling was officiated in the year 2000 by YAB Dato’ Seri Syed Razak bin Syed Zain, the then Chief Minister of Kedah.

In year 2001, MIED established the ‘Asian Institute of Medicine, Science and Technology (AIMST)’ and Tan Sri Datuk Dr. K. Ampikaipakan was formally appointed as the Chairman. An interim campus was established in Amanjaya, Sungai Patani, Kedah. The Malaysian Private Higher Education Department (IPTS), Ministry of Education and National Accreditation Board (LAN) approved the application of AIMST to conduct its first programme, ‘Matriculation’ which is now renamed as ‘Foundation in Science’.

The AIMST was thus registered in 2001 as a private institution under the Private Higher Education Institution Act 1996 (Act 555). In 2002, the IPTS approved ‘Bachelor of Medicine and Bachelor of Surgery (MBBS)’ degree programme as the first degree programme of AIMST. Based on the needs, several expatriate academic staff were recruited. In 2003, Ministry of Home Affairs approved application of AIMST to allow international students to enrol into its degree programmes. AIMST then introduced several first degree programmes in the area of biomedical, paramedical, non-medical domains and various postgraduate degree programmes with affordable tuition fee.

In 2004, IPTS approved the application for MSc Biotechnology (by research) as the first postgraduate degree programme. In 2006, the first batch of Bachelor of Science (Biotechnology) students successfully completed their degree programme from AIMST. Simultaneously, the management secured a temporary certificate for building fitness for relocation to the new campus in Semeling.

On 26th July 2007, Minister of Higher Education, YB Dato’ Mustapa Mohammed, visited AIMST’s newly established campus and subsequently AIMST was officially granted University status. The Opening Ceremony of the AIMST University’s new campus was inaugurated by YAB Dato’ Seri Abdullah Haji Ahmad Badawi, the then Prime Minister of Malaysia on 17th August, 2008. The inaugural convocation was held on 17th October 2008, under the gracious presence of the proclaimed Chancellor of the university, Dato’ Seri Utama Dr. S Samy Vellu.
History of AIMST University

In 2008, Public Service Department (PSD) approved the granting of scholarships for AIMST University students and thus became the 5th private university accredited for PSD scholarships. The newly built AIMST campus was well-equipped with state-of-the-art teaching, student centred facilities, laboratory facilities, health clinic, dental clinic, clinical skills lab, drug information and patient counselling centre. Certificate of Accreditation from the Malaysian Qualifications Agency (MQA) for all courses were sought and obtained.

In 2013, the Faculty of Pharmacy was awarded with ISO 9001:2008 IQNet certification for QMS. A meaningful and smart partnership is very important for every institution of higher learning (IHL) in order to flourish and make a recognizable impact in society and education industry. AIMST University, thus established collaborations with several academic and non-academic institutions including various local, international universities and companies. Post graduate courses, i.e., MBA (Healthcare Programme), MSc (Human Anatomy/Medical Physiology/Medical Biochemistry and Medical Microbiology), and Master of Pharmacy (Clinical Pharmacy) were started at different point of time after provisional accreditation by MQA and licensed by Ministry of Higher Education. AIMST University is well-equipped with various kinds of modern facilities and in a nationwide survey (2011), AIMST was ranked 3rd for having excellent sports and recreational facilities, ranked 2nd among five top Higher Education Provider (HEP) where students feel very safe, and rated 5th among five top HEP’s having a conducive learning environment. AIMST was ranked and listed among the “Top 10 Public and 10 Private Universities” in Malaysia Journal Citation Report of 2012 by Thompson Reuters. In 2013, the Faculty of Medicine was recognized by World Health Organization (WHO) and it is also listed in the Avicenna Directory for medicine. AIMST University’s vision to excel is well recognized and supported by the management to achieve greater heights. AIMST University has become a full-fledged university within a span of 15-years and has made a significant impact in the education industry.

In order to sustain, grow holistically and remain competent, AIMST is taking appropriate measures to develop and enhance its infrastructure, alumni participation, upgrade existing curriculum, strengthen the research and innovation, establish national and international networks to remain competent and achieve the excellence.

Reference: A Bird’s Eye View of the AIMST University, the AIMST University publication, Malaysia, in Press.

Contributed By: Dr. Subhash J. Bhole, Dr. Sundram Karupiah & Mr. Abdul Nazer Ali, AIMST University, Malaysia.
As per the requirement of the Engineering Accreditation Council (EAC) and Malaysian Qualifications Agency (MQA), the students of the Faculty of Engineering and Computer Technology of AIMST University, undertaking degree and diploma programmes in the field of Electrical and Electronic Engineering are required to visit manufacturing plants, industries and factories which is relevant to the Engineering programme.

The purpose of the visit was to give the Engineering students an insight of the operation, the devices and equipments used in the sectors of production, research and development. This would also supplement for a better understanding of the real application of these devices and equipments along with the theory they learn. Therefore, the Faculty of Engineering and Computer Technology organized a trip to a multinational company named S&O Electronics (Malaysia) Sdn Bhd based in Bakar Arang Industrial Estate, Sungai Petani, Kedah.

A total of 20 students and 3 lecturers participated in the visit. Upon arrival at the site, the students and lecturers were given a briefing about their organization; the manufacturing process of Electronic Audio products and guided on a factory tour from the initial to final process including the surface mounting technology and quality control department.

With the latest advancement and the state of the art cutting edge technology were presented by the production management and technical experts of S&O Electronics (Malaysia) Sdn Bhd. The relevant information’s learned and gained by our students and lecturers gave a good exposure about the application of present technology in the Electronic Audio manufacturing systems. -- **Mr. Ravandran Muttiah, FECT**.

### Health Tips

**Blessings in Disguise – ‘Why does our body do that?’**

Curious about the causes of certain reactions like hiccups, goose bumps and eye twitches? Dr. Eric Plasker, DC, Author of ‘The 100 Year Lifestyle’ provides the real scoop. Read to discover the common reasons for 14 peculiar bodily functions.

1. **Yawns:** When the brain is low in oxygen, the mouth opens wide to suck more in. Yawning is a way to regulate the amount of carbon dioxide and oxygen in blood. Unfortunately, yawns are nearly impossible to stifle.

2. **Eye Twitches:** Serious eye twitches can be a symptom of neurological disorder but common causes include stress, lack of sleep, eye strain or extended staring. Before you get panic, try reducing stress, cutting back on caffeine and catch up on sleep.

3. **Itches:** According to Dr. Plasker, our skin often gets itchy because of dryness associated with environment or over-washing. Water and soap can strip the skin off its natural oils, thus sapping moisture. Face or body lotions can help to keep the itches under control; also look in for body washes and soaps labeled ‘moisturizing’. If you still have itchy patches, it may be an allergic reaction to a chemical, plant, food, animal or drug. Consult with skin specialist, if itching persists.

4. **Hiccups:** Dr. Plasker suggests if you have frequent hiccups, try slowing down while eating or drinking. Eating too quickly causes stomach to swell and irritate the diaphragm, which contracts and causes hiccups. Emotional situations and sudden change in body temperature can also trigger hiccups. In both these cases, hiccups are a glitch in nerve pathways. A sudden scare can sometimes shake you up and reset your nerves to end an episode.

5. **Goose Bumps:** Those tiny bumps that cover your skin when cold or scared are defense mechanism. Goose bumps occur when the arrector pili, a tiny muscle that connects hair follicle with skin, contracts and makes the hair stand on end. If you had more hair like a caveman did, the upright hair would trap air to keep you warm or make you look bushier and therefore more threatening to predators.

‘To be continued in next Issue’

**Source of Information:** *Dr. Eric Plasker, DC, Author of ‘The 100 Year Lifestyle’.*
In 1986, the Drug Control Authority (DCA) was established and drug registration was introduced in Malaysia. The Malaysian government has identified the domestic pharmaceutical industry as an industry to be developed and promoted under its new economic development plan in achieving its vision 2020 (Wawasan 2020).

In line with the government policy, AIMST University identified pharmaceutical industrial training as one of the compulsory modules for pharmacy students for a period of six weeks in Bachelor of Pharmacy (Hons) degree course.

The objectives of the industrial training were to develop intellectual knowledge and enhance problem solving skills where our students are exposed to identifying and proposing solutions to industry related problems; develop strategies to organize and improve the industrial working environment; gain exposure to writing industry related reports; develop their personality, communication and adaptability to the industrial working culture which ultimately expose, direct and motivate them to consider pharmaceutical industries as a choice for their future career opportunities.

Faculty of pharmacy, AIMST University is the first institute in Malaysia to place pharmacy students abroad for industrial training. For the past two years we have placed sixty students in various premier pharmaceutical industries in India for training. This exposure with Indian pharmaceutical industries was possible because of the MOA signed between AIMST University, Malaysia and JSS University, India, effective 2012.

Within Malaysia, we have collaboration with approximately thirty pharmaceutical and cosmetic industries with whom our students and staff actively involve in various training and collaborative research. Thus the University through faculty of pharmacy, plays a vital role in promoting industrial values and contributing to the nation. – Dr. P. Vasanth Raj & Dr. Vijayan Venugopal, FOP.

‘The more powerful choices you make, the more powerful your choices become.’ — Robin Sharma
Health Issues

‘Diabetic Retinopathy – Why it is a concern’ - Dr. Sawri Rajan Rajagopal

Diabetic Retinopathy is a retinal pathology that affects patients with diabetes, both type-1 and type-2. Its stage is based on the severity of retinopathy. This can be either the non-proliferative type or the proliferative type. Poor circulation and oxygenation leads to the retina becoming ischemic and subsequently causing retinopathic changes. The non-proliferative retinopathy is staged mild, moderate and severe based on the extent of retinopathy. The retinopathy is staged as proliferative; the moment new fragile vessels start to sprout from the ischemic retinopathy.

Diabetic retinopathy can lead to blindness. What is worrisome is that patients who become blind due to diabetic retinopathy may have never had a prior symptomatic warning and this makes it more devastating when it occurs. These retinopathy changes, more often than not involve the peripheral retina and not involving the centre of sight (the macula) thereby causing no visual symptoms. Occasionally, it does involve the macula causing maculopathy and in these circumstances, the patient presents to the doctor with complaints of worsening vision. The sinister new vessels that form in a poorly oxygenated retina leads to many complications including vitreous hemorrhage, retinal detachment and secondary glaucoma. If left untreated, they cause blindness. If the maculopathy is dense and extensive, it can also lead to potentially irreversible blindness. In fact, blindness from diabetic retinopathy is a leading cause of irreversible blindness among Malaysians.

As diabetic retinopathy is a ‘silent’ progression, eye screening is monumental. Everyone who is diabetic should have their eyes screened preferably at the time of the initial diagnosis. This will enable the physician or the ophthalmologist to determine the stage of the retinopathy if present and follow up accordingly. If there is no visible retinopathy, the screening would be repeated every 1-2 years till lifetime. If retinopathy is present, the treatment would be based on the severity and the follow up is more frequent. Laser treatment is given to those who are at high risk of developing proliferative retinopathy and those who have established proliferative retinopathy or maculopathy. If more severe complications occur, surgical interventions may be indicated.

But most of all, the progression of diabetic retinopathy is very much dependent on the control of diabetes. In those who are pregnant or undergoing puberty, this progression can be hastened. Therefore, screening coupled with good diabetes control is important in preventing the progression of diabetic retinopathy.

References:

One day, a teacher, a garbage collector, and a lawyer all died and went to heaven. St. Peter was there, having a bad day because heaven was getting crowded. When they got to the gate, St. Peter informed them that there would be a test to get into heaven: They each had to answer a single question. To the teacher, he said, “What was the name of the ship that crashed into an iceberg and sunk with all its passengers?” The teacher thought for a second, and then replied: “That would have been the Titanic, right?” St. Peter let him through the gate. Next, St. Peter turned to the garbage man, and figuring that heaven didn’t really need all the stink that this guy would bring in, decided to make the question a little harder. “How many people died on the ship?” The garbage man guesses 1228, to which St. Peter said, “That happens to be right. Go ahead.” St. Peter then turned to the lawyer. “What were their names?” - Mr. R. Ravindran.
The U.S. Food and Drug Administration (FDA), on September 25, 2015, approved Tresiba and Ryzodeg 70/30 to improve blood glucose control in adult patients with diabetes mellitus1. Tresiba is a long-acting insulin analog indicated for the glycemic control improvement in adult patients afflicted with type 1 and 2 diabetes mellitus. On the other hand, Ryzodeg 70/30 is a mixture of insulin degludec (a long-acting insulin analog) and insulin aspart (a rapid-acting human insulin analog) indicated for the glycemic control improvement in adults afflicted with diabetes mellitus1. Adverse effects of these products reported in clinical trials include hypoglycemia, allergic reactions, injection site reactions, lipodystrophy (at the injection site), itching, rash, edema and weight gain. The U.S. FDA, on September 17, 2015, approved Vraylar (cariprazine) capsules for the treatment of adults with schizophrenia and bipolar disorder2. Cariprazine is an atypical antipsychotic3. It is a potent dopamine D3 and D2 receptors partial agonist while it has preferential binding to D3 receptors3. Adverse effects of cariprazine reported in the clinical trials include extrapyramidal symptoms2. The U.S. FDA, on September 02, 2015, approved Varubi (rolapitant) for the prevention of delayed phase chemotherapy-induced nausea and vomiting4. Rolapitant has been reported to be a substance P/neurokinin -1 (NK-1) receptor antagonist. It is worthwhile to mention that activation of NK-1 receptors could play a key role in certain cancer chemotherapy-induced nausea and vomiting in the delayed phase4. Adverse effects of rolapitant include neutropenia, hiccups, decreased appetite and dizziness4. The U.S. FDA, on August 27, 2015, approved Repatha (evolocumab) injection for those patients who are incompetent to get their low-density lipoprotein (LDL) cholesterol under control by means of current treatment options5. Evolocumab provides an additional treatment option for patients with familial hypercholesterolemia or with known cardiovascular disease who are unable to lower their LDL cholesterol enough with statins5. While outlining the mechanism, a specific protein called PCSK9 reduces the number of receptors on the liver that are known to remove LDL cholesterol from the blood. Evolocumab is an antibody that targets PCSK9. By means of blocking PCSK9’s ability to work, it has been suggested that more receptors are being available to get rid of LDL cholesterol from the blood, leading to reduction in LDL cholesterol levels5. Adverse effects of evolocumab include nasopharyngitis, upper respiratory tract infection, flu, back pain, and reactions such as redness, pain or bruising at the injection site5.

References:
‘SGLT2 Inhibitors - A new hope for Diabetics’ - Dr. Dinesh Kumar Upadhyay

It has been almost 100 years since the discovery of a substance produced by the pancreas, which was named insulin and its role in the pancreas in the pathophysiology of Diabetes. The researchers have developed a number of drug classes aimed at increasing insulin secretion from the beta cells of the pancreas and its action on different organ system. The newest addition to the oral anti-diabetic medications, sodium-glucose co-transport (SGLT2) inhibitors, acts independently of insulin to increase glucose excretion from the body¹ and decreasing HbA1c level with minimal side effects.

The first SGLT2 inhibitor was approved by the FDA under the brand name Invokana (Canagliflozin) in 2013 followed by two more Farxiga (Dapagliflozin) and Jardiance (Empagliflozin) in 2014. These medications are selective for SGLT2 transporters and indicated for individuals with type 2 diabetes mellitus (T2DM) as an adjunct to diet and exercise. SGLT2 are the main transporters involved in glucose reabsorption in the kidneys and are present mainly on the S1 and S2 segment of the proximal tubule. These transporters are responsible for roughly 90% of glucose re-absorption.² Canagliflozin also has some inhibition of SGLT1 transporters present on the S3 segment of proximal tubule and intestinal wall resulting in small decrease in glucose absorption and decreased postprandial blood glucose.¹ In a healthy individual, an average of approximately 180 grams of glucose is filtered by the kidney and reabsorbed every day.³ Diabetics have a greater amount of circulating glucose in the blood stream resulting in an up-regulation of SGLT2 transporters in the kidney. Inhibition of these transporters, result in decreased glucose reabsorption, thereby increasing glucose excretion in the urine and subsequent decreases in blood glucose levels. SGLT2 inhibitors block reabsorption of 30-50% of filtered glucose, indicating other mechanistic actions of glucose reabsorption.⁴

SGLT2 inhibitors are primarily metabolized by glucuronidation in the liver to inactive metabolites. It is recommended not to use dapagliflozin with a creatinine clearance of <60 mL/min/1.73 m², and not to use canagliflozin or empagliflozin with a creatinine clearance of <45 mL/min/1.73 m². A maximum dose of 100 mg is recommended for canagliflozin with a creatinine clearance between <60 mL/min/1.73 m² and ≥45 mL/min/1.73 m². Caution and monitoring should be advised with concomitant use of blood pressure lowering medications, other anti-diabetic medications and digoxin, as digoxin levels may increase. SGLT2 inhibitors have been studied as monotherapy in T2DM, as well as in combination with metformin, sulfonylureas, thiazolidinediones, dipeptidyl peptidase-4 inhibitors and insulin. Monotherapy with canagliflozin has shown a decrease in HbA1c by 0.77 to 1.03%.⁵ Risk of hypoglycemia increases if SGLT2 inhibitors are added to medications which increase the production and secretion of insulin.¹ A reduction of systolic blood pressure by 4.4 mmHg and diastolic blood pressure by 2.1 mmHg has been reported in patients treated with SGLT2 inhibitors due to its osmotic diuretic effects.¹ Therefore, caution should be taken when initiating therapy in patients with renal impairment, the elderly, patients with low systolic blood pressure, and patients on diuretics. The most common side effects of SGLT2 inhibitors include genital mycotic infections and urinary tract infections. Females may experience vulvovaginitis and males may experience balanitis most commonly due to Candida albicans.²

In May 2015, the FDA issued a warning regarding the potential risk of ketoacidosis in patients taking SGLT2 inhibitors. Twenty cases had been reported from March 2013 to June 2014, all had resulted in hospitalization for this metabolic state.³ Diabetic ketoacidosis (DKA) is a state characterized by inability to utilize glucose which results in the breakdown of fatty acids into ketone bodies in order to meet energy demands, resulting in acidic blood.⁵ Insulin is required for proper uptake and storage of glucose into target organs; hence, insulin deficiency is the most common precipitating factor of DKA. The FDA safety announcement stated that the median time for onset of ketoacidosis was two weeks after initiation of an SGLT2 inhibitor.

These medications are taken in once daily dosing because of their longer half-life and pharmacokinetics result in minimal drug-drug interactions. While the cardiovascular profile of these new medications is currently the subject of long-term studies, a large proportion of type 2 diabetics are overweight and may benefit from glucose lowering capability, in addition to reducing systolic blood pressure and body fat.

References:
‘New Leads from Old Drugs - Another Way for Drug Discovery’ - Dr. V. Ravichandran

‘The most fruitful basis for the discovery of a new drug is to start with an old drug.’ - Sir James Black (Nobel Laureate 1988 in Physiology and Medicine).

An existing drug usually has undesirable side effect(s), which could be beneficial for treating other conditions. The drug could act as a lead compound on the basis of its side effects, the aim would then be to enhance the desired side effect and to eliminate the major biological activity. This is the SOSA approach - Selective Optimization of Side Activities.1 Choosing a known drug as the lead compound (for a particular side effect) has the advantage that the compound is already ‘drug-like’, and it should be more feasible to develop a clinically useful drug with the required pharmacodynamic and pharmacokinetic properties.

Many of the ‘hits’ obtained from HTS (High Throughput Screening) do not have a ‘drug-like’ structure and may require further efforts to optimize them. Indeed, it has been argued that modification(s) of known drug structures should provide lead compounds in several areas of medicinal chemistry. Many researchers are now screening those compounds that are either in clinical use or have reached late-stage clinical trials, to perceive whether they have side activities that would make them suitable lead compounds.2

Successful examples of SOSA switches

Most sulfonamides have been used as antibacterial agents. However, some sulfonamides with antibacterial activity have convulsive side effects due to hypoglycemia, and hence could not be used clinically. This is an undesirable side effect for an antibacterial agent, however it could be used in the treatment of diabetes due to its ability to lower blood glucose levels. Therefore, structural alterations were made to the concerned sulfonamides in order to eliminate the antibacterial activity and enhance the hypoglycemic activity, which led to the antidiabetic agent, tolbutamide. Another such example is the discovery of the anticoagulant warfarin as a weak inhibitor of a viral enzyme which is important in the life cycle of HIV. Thus warfarin was used as the lead compound in the development of an anti-HIV drug called tipranavir.2

Wermuth (2004)2 reported that during years of practicing SOSA approaches, they observed that starting with a drug molecule as lead substance in performing analogue synthesis, increased the probability of obtaining safer new chemical entities. In addition, most of them satisfy Lipinski’s,3 Veber’s,4 Bergström’s,5 and Wenlock’s6 recommendations in terms of solubility, oral bioavailability, and drug-likeness.

The other successful examples for SOSA approach2

The SOSA approach is thus, an efficient strategy for drug discovery and this strategy leads with high probability to original, safe, bio-available and patentable analogues.

<table>
<thead>
<tr>
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<th>SOSA Derived Analogue</th>
<th>Pharmacological Profile</th>
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<td>Cariporide mesylate (Hoe 642)</td>
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<td>Promethazine</td>
<td>Antihistamine</td>
<td>Chlorpromazine</td>
<td>Neuroleptic agent in psychiatry</td>
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<tr>
<td>Sulfanilamide</td>
<td>Antibacterial</td>
<td>Chlorothiazide</td>
<td>Diuretic</td>
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References:
Asian bony tongue commonly called as ‘dragon fish’ and popularly known as arowana, is one of the most expensive ornamental fish species all over the world. There are four arowana species identified from the genus Scleropages, they are S. formosus (Asian), S. inscriptus (Myanmar), S. jardinii (Pearl) and S. leichardti (Australian). Further, based on the morphological and molecular analysis, the Asian arowana has been further classified into four subspecies including green / nami green (S. formosus); silver asian (S. macrocephalus); red-tailed golden also called as bukit merah blue and gold cross back (S. aureus) and super red arowana (S. legendrei). These fish species have special cultural significance in the regions influenced by Chinese culture. The name ‘dragon fish’ comes from the resemblance of the Chinese dragon. These species are considered to be the beliefs and symbols of good luck and prosperity.

The fish widely distributed in Southeast Asia which includes Cambodia, Indonesia, Laos, Malaysia, Myanmar, Vietnam, Thailand and the Philippines. They inhabit in swamps and flooded forests, but they also occur in lakes, rivers, and reservoirs. In Malaysia, this fish can be found in certain rivers in northern and southern regions such as Penang, Johor, Pahang and Terengganu. Recently, the arowana population has been reduced rapidly in the natural habitats due to over-fishing and habitat degradation. Due to its high demand and over exploitations of natural populations, the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) has listed arowana as a highly endangered species. In addition, several reproductive characteristics such as low fecundity and oral brooding habit make this species vulnerable to overexploitation. Hence, commercial export, import and sales of this fish are normally prohibited in all member countries of CITES, unless the specimens concerned are bred in captivity. The breeding and farming of arowana is being carried out in several countries such as Indonesia, Singapore and Malaysia. Several farms in Bukit Merah (Malaysia) established the culture and breeding technology for arowana and supply fingerlings to local and international ornamental fish sector.

The Asian arowana is known to grow up to 100 cm in total length and live up to 43 years. Generally they are carnivorous species feeds on scorpions, centipedes, mealworms, small fish, small frogs, earthworms, insects, crustaceans, arachnids, non woody roots and tubers and its juvenile feeds insects and water bugs. Aquarists recommended live feeds, worms and high protein meaty foods. The fish exhibits the most extreme and unique form of parental care. They attain maturity at the age of 3-4 years. They spawn throughout the year and peak spawning period was noticed between July and December in the natural water bodies as well as in captive conditions. Female produces relatively few (30-100) and large sized eggs. The fertilized eggs and larvae are mouth-brooded and protected by males for 40-50 days.

Arowana breeding is a simple and easy process in captive conditions. Feed management is one of the most crucial aspects for the rearing of brood fish as well as juveniles. The establishment of arowana farm is a huge investment business. However, many successful entrepreneurs in Malaysia have gained in arowana breeding and marketing. Globally, not much scientific information is available on the feeding and nutrition, growth and survival, reproduction and breeding and culture of arowana. We received AIMST University research grant to establish an economically viable and suitable diet development for arowana fingerlings. Fingerlings of arowana fed with four different diets (artificial pellet feed, bloodworms, meal worms, and guppy fish) for 6 months under laboratory conditions. The best growth and survival was noticed in the fish fed with artificial pellet feed followed by guppy fish.

References:
University Achievements

A group of researchers from AIMST University together with researchers from UNIMAP won a GOLD MEDAL at the INST 2015 – ’2015 Taipei International Invention Show and Technomart’, organized between 1st to 3rd October, 2015. The AIMST researchers were headed by Ms. Siti Zaharah Ahmad and members Prof. Dr. Mohd. Baidi Bahari, Dr. S. Kathiresan and Dr. Yu Chye Wah. The research is supported by the Ministry of Education PRGS fund no. AURRB5/FAS/FRGS/2/2013.

Faculty Updates

Faculty of Dentistry (FOD)
- Faculty of Dentistry participated in “Dental Life Sciences” CDE PROGRAMME On 27th August 2015 in Dental Building. The speaker was Dr. Andrew and his team demonstrated use of new dental products.
- Prof. Wihaskoro Sosroseno, Dean, Faculty of Dentistry, inaugurated the faculty library on 28th August 2015. The library was a success because of efforts of Dr. Jawahar and Dr. Nanditha.

Faculty of Allied Health Profession (FAHP)
- School of Nursing in collaboration with Federation of Private Medical Practitioners’ Association Malaysia (FPMPAM) has conducted 2 days nursing seminar and training course for clinic personnel on 31st July, 2015 and 1st October, 2015 for 60 nurses and clinical personnel at Cinta Sayang Resort, Sungai Petani, Kedah.

Faculty of Medicine (FOM)
- Larmie ET, Komathi, Dharma and Pandian, Faculty of Medicine conducted a workshop on Basic Life Support entitled “Medical Emergencies on a Dental Chair” at AIMST University for Dental Faculty members on 29th May, 2015 and 18th June, 2015.

Faculty of Pharmacy (FOP)
- Dr. Mukesh Singh Sikarwar had delivered a talk on the topic of “Nutraceutical and medicinal value of breadfruit (Artocarpusaltilis)” in International Congress on Breadfruit “Commercializing Breadfruit for Food and Nutrition Security” organized by University of West Indies, St. Augustine at Hyatt Regency Trinidad, Port of Spain, Trinidad and Tobago, 6th–10th July 2015 as a plenary speaker. His participation was fully sponsored by organizers.
10th MyPSA NoGAPS 2015 was organized by Pharmaceutical Society of AIMST University with the theme of “A step towards pharmaceutical excellence” held from 13th to 16th August 2015. National Gathering of Pharmacy Students (NoGAPS) is an annual event of Malaysian Pharmacy Students Association (MyPSA), student chapter of Malaysian Pharmaceutical Society (MPS). The main objective of this event is to improve the competency of students, enrich their knowledge base, enhance their interpersonal skills and to develop the clinical skills in various practice settings and to prepare them for their career. Participants of this event had the opportunity to participate in a series of symposium, interactive workshops, poster presentation, community outreach program and social events.

As a part of this event, a symposium on ‘Dispensing Right Separation’ was held by the prominent speakers, Mr. John Chang, Deputy President of MPS; Past President of FAPA, Mr. Amrahi Buang and Deputy Dean of Student Affairs & Networking, USM, Professor Azmi Ahmad Hassali. The two hour symposium was moderated by MyPSA National Advisor, Datin Mariani Ahmad Nizaruddin. About 405 pharmacy students from various universities like USM, UM, UKM, IIUM, UITM, Taylor’s University, Sege University, IMU, UCSI, Asian Metropolitan University, MAHSA University, CUCMS, University of Nottingham Malaysia Campus, MSU and AIMST participated in the event.

A series of educative workshops on ‘The expectation of Malaysian Physicians towards Pharmacists’; ‘Problem faced by the pharmacists in opening a retail pharmacy’; ‘COPD and Asthma: The role of pharmacists’; and ‘Traditional medicines versus modern medicines.’ Experience on ‘Kenali Ubat Anda’, ‘Dosage form competition’, and ‘Patient counseling with respiratory devices demonstration’ and ‘Interpretation and analysis of basic electrocardiogram’. The participants also actively participated in TV show and Quiz to test their knowledge and counseling skills.

Public health campaign as a community outreach program, a diabetes awareness campaign was also organized with the theme “Less sugar, sweeter life’ at Tesco Sungai Petani (Selatan) to raise public awareness on prevention and control of diabetes in collaboration with the Persatuan Diabetes Malaysia (PDM), Tesco Sungai Petani and Hospital Sultan Abdul Halim (HSAH). Free health screening (blood sugar, blood pressure and BMI), diet counseling, health talk, diabetes foot care and insulin administration demonstrations, ‘Kenali Ubat Anda’ campaign as well as blood donation campaign activities were covered during this campaign. Approximately 500 public members participated in this event and managed to raise 50 bags of blood to the blood bank of HSAH during this event. The 1st MyPSA public health campaign poster competition was championed by UiTM, The champion of public health campaign went to the UKM’s team, AMU team won the first runner up and the second runner up was Segi University.

A social outreach programme named ‘Carnival Active Burn Calorie (ABC)’ was also organized in collaboration with Sekolah Kebangsaan Sungai Layar, Sungai Petani, Kedah. About 650 students actively participated in various activities like educative games, mural painting, colouring contest, basic life support demonstration (in collaboration with St. John Ambulance, Gurun), and health poster exhibitions.

Activities like Pharmazing race and Gala dinner were organized on the final day to further strengthen their bond, knowledge base, interpersonal and communication skills. Through this event the objectives were fulfilled and all the participants departed with sweet memories for their life time.

Mr. Ng Yen Ping & Dr. Sundram Karupiah
Alumni Achievements

“Study in AIMST BSc Biotech Course is a great experience of mine with great lecturers, great facilities, great supports and great environment” - Ong Yeong Wei, B.Sc. Biotechnology, 10th Batch, Currently employed at Environmental, Quality and Sales Executive (EQS), A.I.M. Chemical Industries Pte Ltd, Singapore.

“I pursued BSc (Hons) Biotechnology in AIMST University for 3 years during which I got exposure to various experience related to the course and extra curricular activities. They have experienced and knowledgeable lecturers who are able to educate according to the current needs of the industry and on topics relevant to recent development in the Biotech sector... Not forgetting the compact and well landscaped campus... Thank you AIMST” - Satheswaran Thambyraju, B.Sc. (Hons) Biotenology, 8th Batch, Currently employed as and at Registration Executive, Registration and Billing Department, .my Domain Registry (MYNIC Berhad).

"Having completed my undergraduate degree and a master degree in Biotechnology at the AIMST University, provided the perfect stepping-stone into career path and it also prepared me extremely well to continue on PhD research. The passionate lecturers were the main reasons for me to gain in-depth knowledge of Biotechnology. Perhaps the most valuable part of Biotech course is the challenging research project, which introduces the students into the research fields and it also molds the students to be a good researcher. My time in AIMST was a truly memorable experience and I’m really glad that I got these degrees from this honorable university.” - Shamini A/P Gunasagaran, B.Sc. (Hons) Biotechnology, 11th Batch, AIMST, M.Sc. Biotechnology, AIMST, Currently employed as and at Assistant Researcher, Ipsos Sdn Bhd, Kuala Lumpur.

Regarding AIMST University Bachelor (Hons) Biotechnology programme, it is undeniable that this course completes me in education wise and personal development. This programme covers a very wide scope in term of practical and theory. This greatly enables us to find a job easily in the society. As it covers a wide scope, the chances of furthering our Master and PhD programme will be a lot easier. But in addition, as an application scientist in Flavoblitz Sdn. Bhd., chemistry knowledge is very important to me, so if AIMST Biotechnology can implement more syllabuses on chemistry background, this will bring the course to a higher level of achievement. - Oong Chuang Li, B.Sc. (Hons) Biotechnology, 13th Batch, Currently employed as and at Application Scientist, Flavoblitz SDN BHD.

For me, AIMST University was the best choice and experience because it combines knowledge, virtues and creativity. For Biotechnology research students basic Science knowledge and facts are very useful and we were taught right from the basics. Besides this, we were offered well equipped facilities for our research. We had very patient and cooperative lecturers who guided us at every step. Now, I am persuing my PhD at one of the best Universities in India and I owe this to my lecturers at AIMST University. I am really pleased and proud that I could be a part of AIMST University. - Afshan Srikumar, B.Sc. (Hons) Biotechnology, 12th Batch, Currently in 2nd year, Integrated PhD in Biotechnology, Hyderabad Central University, India.

Satheswaran Thambyraju  Oong Chuang Li  Shamini  Afshan Srikumar

Answers for Prescriptions

Rx 1:
Relafen 500 mg tablets: Take 2 tablets PO twice daily;
Zanaflex 4 mg tablets: Take 2 tablets PO 3 times daily as needed
Cymbalta 60 mg capsules: Take 1 capsule PO twice daily
Tramadol 50 mg tablets: Take 2 tablets PO 3 times daily as needed

Rx 2:
Lasix 40 mg, 1 pill alternating 1 and 1/2 pill.

Source:
Pharmacy Times (September, 2015)
'A wonderful experience with high standard of education and infinite professional guidance from the lecturers I gained throughout my 3 years of study in AIMST. With this, I am granted with a secured career as a Physiotherapist. AIMST also set a strong foundation to allow me to pursue my Bachelor of Physiotherapy in University of Otago, New Zealand.’ - Anne Marie Li Ai - Diploma in Physiotherapy Batch 1 Student

'I have had a very good experience and guidance from the school of physiotherapy at AIMST University. The teaching & learning activity has provided me with good reasoning skills which are crucial & useful at my workplace. My employer is satisfied and appreciates my clinical performance. This credit goes to the school of physiotherapy.’ - Komala a/p Balakrishnan - Diploma in Physiotherapy Batch 1 Student

'For me AIMST University is the best choice because it combines knowledge, virtues and creativity. For Allied Health Professional implied knowledge is very useful. Besides this, it offers main sources and facilities for our future plans and achievements for our goals. The most important thing for us is that we are well prepared and know how to deal with most difficulties that will come along in our professional careers. I am sure planning to continue and take a degree course in the future. I would like to take this opportunity to thank my coordinator, lecturers, tutors and not forgetting the staffs of AIMST University. I am really pleased and proud to be part of AIMST University.’ - Kamarulazam a/p Mathevan - Diploma in Physiotherapy Batch 2 Student

'Three years of pursuing my Diploma in Physiotherapy at AIMST UNIVERSITY gave me such a vast knowledge. The exposures of clinical postings are very wide and I was very fortunate to have most of the lecturers to nurture me. With this opportunity, I would like to show my gratitude to my lecturer, friends, peers, physiotherapists for the guidance and patience towards me. I am proud that I was immediately offered as a Physiotherapist in one of the reputable private hospital after my final clinical placement. In a nutshell, I would like to thanks AIMST for providing us this course and also thanks to my Coordinator of Physiotherapy who runs this course!’ - Sharlynn Lim Yi Ling - Diploma in Physiotherapy Batch 2 (April 2008 Intake).

'It weren't my parents who decided that I should come to AIMST University! It was my choice! The first day I stepped into the gates of the University, I felt it was a magnificent place to spend the next few years of my life! During registration, I managed to meet some of the staff who were quite busy. I saw them smile but I thought they were a little strict as I could not get the room mate that I wanted! Nevertheless, they promised me that to make some adjustments after a day or two. Most of the students were quiet during the Orientation Programme held for about 3 days. But we made friends. I didn't like the attitude of some who seemed arrogant and were trying to show off! But after all, we have our own group of friends who can "click" well with other, right? Food? I thought it was okay! Spicy Malaysian food! But we got some "Chinese" food as well! Some soup, vegetables and chicken. I hoped the menu would be interesting each day otherwise I could die of self-starvation! Four to a room is a cram! But having understanding friends is so important. I thank my nice room mates who make sure they are a studious lot and don't make much noise! My Foundation School lecturers were excellent. I really started enjoying my classes except for the assignments! But I am learning! Thank God, I have some nice friends who discuss daily with me and that helps a lot! I am glad that at least the Sports Center is open everyday. So, in the evenings I get to play badminton, my favourite game! My friends join me in the game. Well, what do I do in the evenings? Hopefully, I get to watch some programmes on ASTRO in our hostel! What do I want finally? Just to achieve what I came here for! I must get into Medicine!!!’ - Julia - July Batch Foundation Programme